ENVIRONMENTAL CHEMISTS

Date of Report: November 19, 1993 Date Received: November 10, 1993 Project: Storm Sewer, PO #M 31755

Date Samples Extracted: November 10, 1993 Date Extracts Analyzed: November 11, 1993

RESULTS FROM THE ANALYSIS OF THE SLUDGE SAMPLE FOR TOTAL PETROLEUM HYDROCARBONS BY IR (METHOD 418.1)

(MODIFIED TO REPORT RESULTS AS DIESEL)

Results Reported as µg/g (ppm)

Sample #	Total Petroleum <u>Hydrocarbons</u>
M 31755	24,000
Quality Assurance	
Blank	<20
M 31755 (Duplicate)	20,000
M 31755 (Matrix Spike) % Recovery	ai
M 31755 (Matrix Spike Duplicate) % Recovery	ai
Spike Blank % Recovery	120%
Spike Level	250

ai The amount spiked was insufficient to give meaningful recovery data.

ENVIRONMENTAL CHEMISTS

Date of Report: November 19, 1993 Date Received: November 10, 1993 Project: Storm Sewer, PO #M 31755

Date Samples Extracted: November 16, 1993 Date Extracts Analyzed: November 17, 1993

RESULTS FROM THE ANALYSIS OF THE SLUDGE SAMPLE FOR FINGERPRINT CHARACTERIZATION BY INDUCTIVELY COUPLED PLASMA (ICP) EMISSION SPECTRSOCOPY Samples Processed Using Method 3050

Sample #

ICP Characterization

M 31755

The ICP emission spectroscopy trace showed the presence of the following metals at the approximate level indicated.

Aluminum (1,800 ppm)
Antimony (<1 ppm)
Arsenic (<1 ppm)
Barium (28 ppm)
Berylium (<1 ppm)
Boron (<1 ppm)
Cadmium 1(ppm)
Calcium (530 ppm)
Chromium (2,100 ppm)
Cobalt (4 ppm)
Copper (1,600 ppm)
Gold (<1 ppm)
Iron (2,700 ppm)
Lead (32 ppm)
Magnesium (280 ppm)
Magnesium (280 ppm)

Manganese (50 ppm) Mercury (<1 ppm) Molybdenum (24 ppm) Nickel (160 ppm) Palladium (<1 ppm) Phosphorous (<1 ppm) Platinum (<1 ppm) Potassium (220 ppm) Rhenium (<1 ppm) Selenium (<1 ppm) Silicon (27 ppm) Silver (30 ppm) Sodium (370 ppm) Strontium (10 ppm) Thallium (<1 ppm) Tin (<1 ppm) Titanium (16 ppm) Uranium (<1 ppm) Vanadium (<1 ppm) Yttrium (<10 ppm) Zinc (48 ppm)

Zirconium (<1 ppm)

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ENVIRONMENTAL CHEMISTS

Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282

DUPLICATE COPY

3008-B 16th Avenue West Seattle, WA 98119 FAX: (206) 283-5044

November 19, 1993

INVOICE # 93ACU1119-1

Alaskan Copper Works 628 South Hanford Seattle, WA 98134

RE: Project Storm Sewer, PO #M 31755: Results of testing requested by Gerald Thompson, Project Leader and submitted on November 10, 1993.

1 sludge sample analyzed for Total Petroleum	
Hydrocarbons by Method 418.1 @ \$50 per sample	\$ 50.00
1 sludge sample characterized by ICP Emission	
Spectroscopy @ \$75 per sample	<u> 75.00</u>
Amount Due	\$ 125.00

ENVIRONMENTAL CHEMISTS

Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282 3008-B 16th Avenue West Seattle, WA 98119 FAX: (206) 283-5044

November 19, 1993

Gerald Thompson, Project Leader Alaskan Copper Works 628 South Hanford Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on November 10, 1993 from Project Storm Sewer, PO #M 31755.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

Bradley T. Benson

Chemist

BTB/dp

Enclosures